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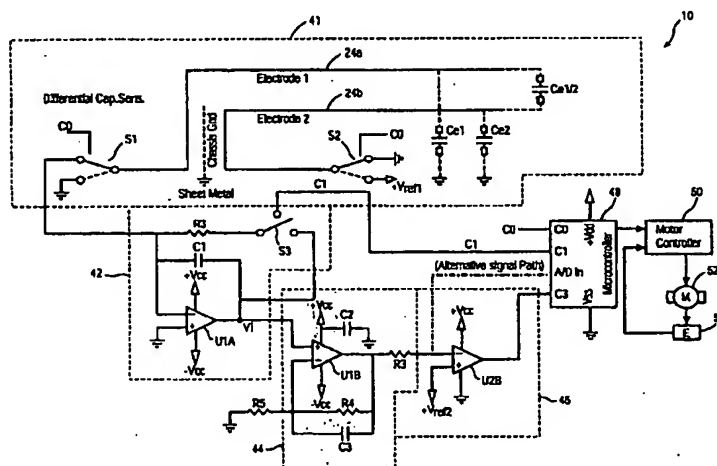
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(54) Title: **DIFFERENTIAL ANTI-PINCH CAPACITIVE SENSOR**



(57) **Abstract:** A proximity sensor for sensing an object in the path of or proximate to a closure panel such as a vehicle window. First and second electrodes encased in a non-conductive casing are mounted on the metallic structure near the closing edge of the aperture. The two electrodes define a capacitance  $CE1/2$  therebetween, and parasitic capacitances  $CE1$  &  $CE2$  between the first electrode and chassis ground and the second electrode and chassis ground, respectively. A controller cyclically connects (1) the second electrode to a voltage reference source ( $V_{ref}$ ) and the first electrode to chassis ground and (2) the second electrode to chassis ground and the first electrode to the reference capacitor, thereby periodically charging the capacitance  $CE1/2$  and transferring the charge stored thereon to the reference capacitor whilst short-circuiting the parasitic capacitances. The charge on the reference capacitor, the time period required to charge the reference capacitor to a specified voltage, or a calculated value for  $CE1/2$  are then compared against a reference value in order to derive an obstruction signal.